Homework 5

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1) Condorcet is ~~not~~ Group-manipulable

Let X be the group of voters attempting to manipulate, with sincere profile B and insincere profile B'.

All voters $\notin X$ has same ballots $\in B, B'$. Voters $\in X$ prefer B' to B.

Say we have the following ballot B:

v_1	v_2	v_3	v_4	v_5
a	a	b	c	c
b	c	c	b	b
c	b	a	a	a

Table 1: Profile B

Pairwise competitions:

a vs. b: (2, 3) so b wins
b vs. c: (2, 3) so c wins
c vs. a: (3, 2) so c wins

c is undefeated, so c is the Condorcet winner.

Let's manipulate the last 2 voters.

v_1	v_2	v_3	v_4	v_5
a	a	b	b	b
b	c	c	c	c
c	b	a	a	a

Table 2: Profile B'

Pairwise competitions:

a vs. b: (2, 3) so b wins
b vs. c: (3, 2) so b wins
c vs. a: (3, 2) so c wins

So we have shown that Condorcet is in fact group manipulable by constructing a counterexample.